

## NEW TAXA OF PALAFOXIA (ASTERACEAE: HELENIEAE)

B. L. TURNER and MICHAEL I. MORRIS

Department of Botany, The University of Texas, Austin 78712

During preparation of a monograph of *Palafoxia*, we discovered new taxa that are confined to the deserts of southwestern United States and Mexico, typically in sandy soils at low elevations.

***Palafoxia arida*** B. L. Turner & M. I. Morris, sp. nov. Herbae annuae 10–70 cm altae; caules erecti saepe omnino divaricate ramosi scabrosi vel aspero-hispidi raro fere glabri caulibus superis saepe conspice pubescentibus trichomatibus glandularibus. Folia mediocaulina linearia vel lanceo-linearia 20–100 mm longa 2–8 mm lata apice gradatim angustata utrinque canescenti-scabrosa; petioli mediocaulini 5–20 mm longi. Capitulescentia subcorymbose cymosa. Capitula 5–40 subturbinata vel fere cylindrica 5–10 mm diametro 20–28 mm alta (floribus exsertis inclusis) 9–20-flora; pedunculi 1–5 (7) cm longi; phyllaria principales (6) 7–15 linearia 10–20 mm longa 1–2 mm lata scabra vel dense glandulose-pubescentia saepe dorsaliter aliquantum carinata. Flores centrales actinomorphi; corolla 9–11 mm longa rosei-alba vel rosea tubis 2–4 mm longis faucibus cylindraceis 6–8 mm longis lobis 1–2 mm longis; rami styli 4–5 mm longi. Achenia linearia 10–15 mm longa faciebus 4 dense vel sparse adpressi-pubescentibus; pappi squamae costis prominentibus; achenia intima supra angulos squamis 4 linearibus acutis 8–12 mm longis supra facies squamis 4 brevioribus abortivis; achenia extima squamis 3–8 inaequales vel nullis. Chromosomatum numerus,  $n = 12$ .

TYPE: United States, California, San Bernardino Co., "The Needles", 7 May 1884, *M. E. Jones 3849*. Holotype: US! Isotypes: ARIZ! CAS! DS! F! NY! UC!.

The following voucher specimens, which are deposited in TEX, have a chromosome number of  $n = 12$ : Arizona, Mohave Co., *Turner 4787*; California, Riverside Co., *Powell & Sikes 1383*; and Mexico, Baja California, *Powell & Turner 1705*.

*Palafoxia arida* is named for the arid climate in which it grows. The species is widespread in sandy soils throughout the Mojave, Colorado, and Sonoran deserts of southwestern United States and Mexico.

Recent taxonomists (Munz, P. A. 1959. *A California flora*.) have referred to this species as *Palafoxia linearis*. Nevertheless, this name applies to a related, allopatric taxon occupying coastal sand dunes of southern Baja California. *Palafoxia arida* can be easily distinguished from *P. linearis* in that plants of the former are erect tap-rooted annuals possessing linear-lanceolate leaves with acute apices, whereas plants of the latter are suffruticose, sprawling shrublets having linear leaves with round or obtuse apices.

*Palafoxia arida* var. *gigantea* (M. E. Jones) B. L. Turner & M. I. Morris, comb. nov. *Palafoxia linearis* (Cav.) Lag. var. *gigantea* M. E. Jones, Contr. W. Bot. 18:79. 1933.

TYPE: United States, California, Imperial Co., sand dunes, W of Yuma, 24 Sep 1931, *M. E. Jones 28599*. Holotype: POM! Isotypes: MO! UC!.

*Palafoxia arida* var. *gigantea* can be distinguished by its more robust habit (ca 0.9–1.5 m tall), primary stems 0.5–1.0 cm thick, and heads 28–35 mm long. Variety *gigantea* is endemic to the dunes of southeastern Imperial County, California (just west of Yuma, Arizona).

*Palafoxia linearis* (Cav.) Lag. var. *glandulosa* B. L. Turner & M. I. Morris, var. nov. A *P. linearis* var. *linearis* caulibus foliisque scabrosissimis glandulari-pubescentibus; pappi squamis abortivis brevioribus differt.

Plants perennial, 40–80 cm high, up to 150 cm across; stems suffruticose and branched from the base, forming conspicuous clumps, rather evenly pubescent with stiff, appressed white hairs, densely covered with rough glandular pubescence; leaves simple, succulent, alternate; mid-stem leaves lance-linear to nearly obovate, 25–50 mm long, 3–8 mm wide, with petioles 3–8 mm long, blades rather abruptly terminated by an obtuse or rounded apex (very rarely nearly acute), canescent-scabrous on both surfaces, with dense covering of glandular pubescence; inflorescence a subcorymbose cyme with 3–15(20) heads; heads subturbinate to nearly cylindrical, 5–10 mm across, 20–22 mm high (including the projecting flowers), 10–20 flowered, on peduncles 1.5–5.0 cm long; principal phyllaries 8–14, linear, 10–15 mm long, 1–2 mm wide, scabrous-pubescent, especially below (rarely somewhat glandular); florets “white with faint tinge of magenta-pink” on lobes, regular (outer florets becoming zygomorphic); corolla 7–10 mm long, tube 2–3 mm long, throat cylindrical (in outer florets somewhat flaring), 5–7 mm long, the lobes 1–2 mm long; style branches 4–5 mm long; achenes 7–11 mm long, linear, 4-sided, densely appressed-pubescent; pappus scales 4–8, unequal, with pronounced midribs, the inner florets normally with 4 linear, acute scales, 6–9 mm long, on the angles, these alternating with 4, much shorter, abortive scales. Chromosome number not determined.

TYPE: Mexico, Baja California, mouth of arroyo along beach at Barril, 48 mi E of Pozo Aleman, 2 Mar 1935, *Ira L. Wiggins 7825*. Holotype: DS! Isotypes: F! GH! UC! US!.

*Palafoxia linearis* var. *glandulosa* is named for the rough glandular pubescence that densely covers the leaves and mid-stems, a characteristic that distinguishes it from var. *linearis*, which lacks glandular trichomes on these parts. The taxon is restricted to coastal sand dunes of eastern Baja California from latitude 26°30' N to 29°30' N while var. *linearis* occupies similar but more southern sites.

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